



Draft
Delisting Decision
for
Newfound Creek

Assessment Unit ID # AL03160111-0405-101

Siltation (Habitat Alteration)

Alabama Department of Environmental Management
Water Division - Water Quality Branch
November 2017

Figure 1. Newfound Creek Watershed (Black Warrior River Basin)

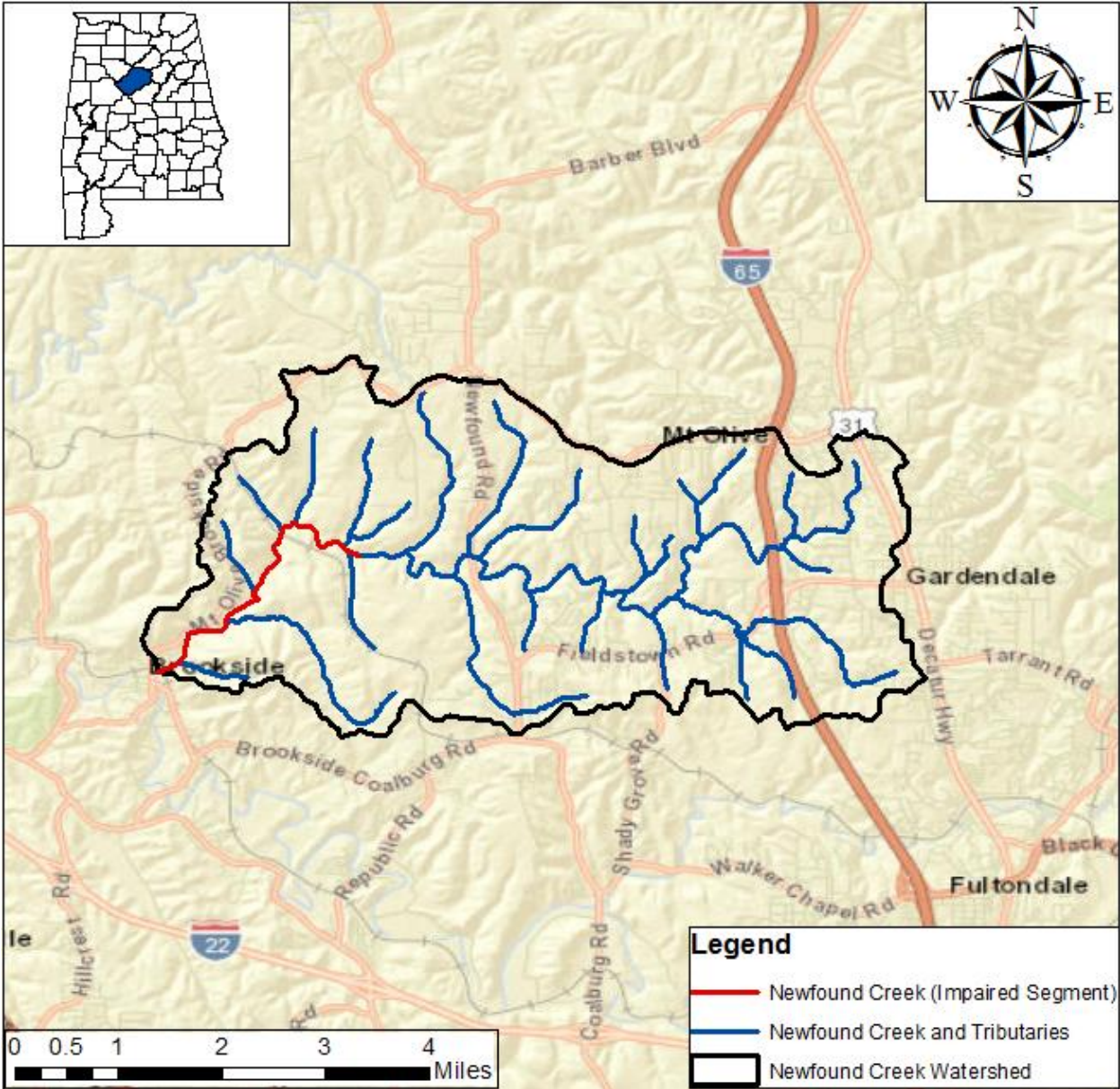


Table of Contents

1.0 Executive Summary	2
2.0 Basis for §303(d) Listing	3
3.0 Technical Basis for Delisting.....	3
3.1 Water Quality Target Identification	3
3.2 Data Availability	4
4.0 Data Analysis	6
4.1 Macroinvertebrate Assessments	6
4.2 Habitat Assessments	6
4.3 Conventional Water Quality Data	7
4.3.1 Total Suspended Solids	8
4.3.2 Turbidity	8
5.0 Conclusion	9
6.0 Public Participation	9
Appendix 1: Ecoregional Reference Values – Ecoregion 68.....	11
Appendix 2: Turbidity and TSS data from NFDJ-1 and NFDJ-2.....	12
Appendix 3: Stations NFDJ-1 and NFDJ-2 Location Map.....	13
Appendix 4: Station Pictures.....	14

1.0 Executive Summary

Newfound Creek is a tributary of Fivemile Creek and is located in Jefferson County in the Black Warrior River Basin. Newfound Creek has a total length of approximately 6.4 miles and a total drainage area of 15.74 mi². The use classification for Newfound Creek is Fish and Wildlife (F&W).

Newfound Creek was originally added to Alabama's 1998 §303(d) list by USEPA, with biology listed as the pollutant of concern. ADEM revised the cause of impairment from biology to siltation on the 2006 §303(d) list, and then revised the cause to siltation (habitat alteration) on the 2008 §303(d) list. The impaired segment is 2.76 miles long and stretches from the impoundment located on Newfound Creek to the confluence with Fivemile Creek. The location of this segment is shown in Figure 1, and Alabama's current §303(d) Listing of Newfound Creek is shown in Table 1.

A delisting analysis was conducted for the impaired segment of Newfound Creek, and only the most recent data (within the past 6 years) was used. Water quality data for this analysis was collected from stations NFDJ-1 and NFDJ-2. A habitat assessment was conducted at station NFDJ-2 in 2012. The habitat conditions at NFDJ-2 were rated as "Optimal." A macroinvertebrate assessment was also conducted alongside the habitat assessment at NFDJ-2, and the macroinvertebrate community was rated as "Fair." Turbidity and total suspended solids data collected in 2012 from both NFDJ-1 and NFDJ-2 were also analyzed and were below the applicable ecoreference values.

After reviewing the data, the Department has determined that a siltation impairment in Newfound Creek does not currently exist. Therefore, ADEM will not develop a TMDL for Newfound Creek due to "more recent data," which is just cause for delisting waterbodies according to Title 40 of the Code of Federal Regulations (CFR), Part 130.7(b)(6)(iv).

Table 1: 2016 Alabama §303(d) Listing

Assessment Unit ID	Waterbody Name	River Basin	County	Uses	Causes	Size	Downstream / Upstream Locations	Year Listed
AL03160111-0405-101	Newfound Creek	Black Warrior	Jefferson	Fish & Wildlife	Siltation (habitat alteration)	2.76 miles	Fivemile Creek / Impoundment	1998

2.0 Basis for §303(d) Listing

Section 303(d) of the Clean Water Act (CWA), as amended by the Water Quality Act of 1987 and EPA's Water Quality Planning and Management Regulations (Title 40 of the Code of Federal Regulations (CFR), Part 130), requires states to identify waterbodies which are not meeting water quality standards applicable to their designated use classifications. The identified waters are prioritized based on severity of pollution with respect to designated use classifications, and total maximum daily loads (TMDLs) are determined for pollutants causing the impairment. Such loads are established at levels necessary to implement the applicable water quality standards with seasonal variations and margins of safety. The TMDL process establishes the allowable loading of pollutants based on the relationship between pollution sources and in-stream water quality conditions, so that states can establish water-quality based controls to reduce pollution from both point and non-point sources and restore and maintain the quality of their water resources (USEPA, 1991).

Newfound Creek was originally added to Alabama's 1998 §303(d) list by USEPA, with biology listed as the pollutant of concern. ADEM revised the cause of impairment from biology to siltation on the 2006 §303(d) list, and then revised the cause to siltation (habitat alteration) on the 2008 §303(d) list. The original source of the impairment was listed as unknown, but the source has since been changed to urban runoff and storm sewers.

3.0 Technical Basis for Delisting

3.1 Water Quality Target Identification

The State of Alabama currently has no numeric criteria for siltation; therefore, narrative criteria must be used to assess the siltation impairment. While numeric criteria normally have a quantifiable endpoint for a given parameter, narrative criteria are qualitative statements that establish a set of desired conditions for all State waters. These narrative criteria are commonly referred to as "free from" criteria that enable states a regulatory avenue to address pollutants or problems that may be causing or contributing to a use impairment that otherwise cannot be evaluated against any numeric criteria. Typical pollutants that fall under this category are nutrients and siltation. Historically, in the absence of established numeric criteria, ADEM and/or EPA would use available data and information coupled with best professional judgement to determine overall use support for a given waterbody. Narrative criteria continue to serve as a regulatory basis for determining use support and making

listing/delisting decisions of waters in regards to Alabama's §303(d) list. ADEM's Narrative Criteria, as shown in ADEM Admin. Code r. 335-6-10-.06, are as follows:

335-6-10-.06 Minimum Conditions Applicable to All State Waters. *The following minimum conditions are applicable to all State waters, at all places and at all times, regardless of their uses:*

(a) State waters shall be free from substances attributable to sewage, industrial wastes or other wastes that settle to form bottom deposits which are unsightly, putrescent or interfere directly or indirectly with any classified water use.

(b) State waters shall be free from floating debris, oil, scum, and other floating materials attributable to sewage, industrial wastes or other wastes in amounts sufficient to be unsightly or which interfere directly or indirectly with any classified water use.

(c) State waters shall be free from substances attributable to sewage, industrial wastes or other wastes in concentrations or combinations, which are toxic or harmful to human, animal or aquatic life to the extent commensurate with the designated usage of such waters.

For the siltation (habitat alteration) impairment status, relative biological health and habitat suitability will be evaluated along with an assessment of the instream total suspended solids (TSS) and turbidity data.

Although ADEM does not currently have numeric criteria for siltation, there is an existing criterion for turbidity. According to ADEM Admin. Code 335-6-10-.09(e)9, the following criterion is applicable for a waterbody classified as Fish and Wildlife:

9. Turbidity: there shall be no turbidity other than of natural origin that will cause substantial visible contrast with the natural appearance of the waters or interfere with any beneficial uses which they serve. Furthermore, in no case shall the turbidity exceed 50 NTU above background. Background will be interpreted as the natural condition of the receiving water without the influence of man-made or man-induced causes. Turbidity caused by natural runoff will be included in establishing background levels.

3.2 Data Availability

Water quality data was collected from two stations on Newfound Creek: NFDJ-1 and NFDJ-2. NFDJ-1 and NFDJ-2 are both located on the impaired segment of Newfound Creek. Descriptions of each station are shown in Table 2. The data collected from these stations are shown in Appendix 2. Their locations are shown in Appendix 3.

Table 2: Newfound Creek Station Descriptions

Station	Latitude	Longitude	Ecoregion	Drainage Area (mi ²)	Location Description
NFDJ-1	33.656021	-86.888917	68 f	10.93	Newfound Creek at County Road 67, downstream of impoundment
NFDJ-2	33.64345	-86.91195	68 f	15.5	Newfound Creek at County Road 112

In addition, the Department's Field Operations Division conducted macroinvertebrate assessments and habitat assessments at NFDJ-2 in 2012 to evaluate the existing aquatic communities. Macroinvertebrate assessments and habitat assessments were conducted during the same station visit. Biological health is rated on macroinvertebrate metrics including taxa richness, composition, and community tolerance. These metrics are site-specific based on observations and data from reference streams similar in hydrology, ecology, and relative size. For the purpose of determining use support for siltation, the following guidelines regarding interpretation of biological data will be used:

- **Fully Supporting** - Macroinvertebrates determined to be Excellent (Unimpaired), Good (Slightly Impaired), and Fair (Moderately Impaired) rating if Chemical/Physical/Field Data indicates compliance.
- **Partial Supporting** - Macroinvertebrates determined to be Fair (Moderately Impaired) and Chemical/Physical/Field Data indicates impairment.
- **Not Supporting** - Macroinvertebrates determined to be Poor (Severely Impaired) and Chemical/Physical/Field Data indicates impairment.

For the habitat assessment, the overall habitat quality is rated as: Optimal, Sub-optimal, Marginal, or Poor. An interpretation of each habitat quality rating is shown in Table 3.

Table 3: Interpretation of Habitat Assessment Ratings

Rating	Interpretation
Optimal	Conditions meet natural expectations
Sub-optimal	Satisfies expectations under most conditions
Marginal	Moderate levels of degradation
Poor	Substantially Altered

4.0 Data Analysis

Macroinvertebrate and habitat assessments along with conventional water quality data such as turbidity and total suspended solids (TSS) were considered in the decision to delist Newfound Creek. These findings and analyses are discussed below.

4.1 Macroinvertebrate Assessments

During 2012, the Department conducted an intensive assessment of the macroinvertebrate community on Newfound Creek at station NFDJ-2. Benthic macroinvertebrate communities were evaluated using the Department's Intensive Multi-habitat Bioassessment methodology (WMB-I). The WMB-I uses measures of taxonomic richness, community composition, and community tolerance to assess the overall health of the macroinvertebrate community. Results of the assessment indicated the macroinvertebrate community at NFDJ-2 is in "Fair" condition.

Figure 2: Macroinvertebrate Assessment Results for NFDJ-2

Macroinvertebrate Assessment		
	Results	Scores (0-100)
Taxa richness measures		
# EPT taxa	11	30
Taxonomic composition measures		
% Non-insect taxa	6	81
% Dominant taxon	23	67
% EPC taxa	21	39
Functional feeding group measures		
% Predators	7	24
Tolerance measures		
% Taxa as Tolerant	32	49
WMB-I Assessment Score	---	48
WMB-I Assessment Rating		Fair (39-58)

4.2 Habitat Assessments

A habitat assessment was also conducted at NFDJ-2 in 2012. Reach characteristics and habitat conditions are evaluated based on several categories including instream habitat quality, sediment deposition, stream sinuosity, bank stability, and riparian buffer. The results are then compared to

scores from reference reaches in the same or similar eco-regions in order to provide an overall indication of the quality and availability of habitat for aquatic life. The habitat at NFDJ-2 was rated as “Optimal.” Below are the results for the habitat assessment for NFDJ-2.

Figure 3: Habitat assessment results at NFDJ-2

Habitat Assessment	% Maximum Score	Rating
Instream Habitat Quality	75	Optimal (> 70)
Sediment Deposition	82	Optimal (> 70)
Sinuosity	85	Optimal (≥85)
Bank and Vegetative Stability	55	Marginal (35-59)
Riparian Buffer	89	Sub-optimal (70-89)
Habitat Assessment Score	177	
% Maximum score	74	Optimal (> 70)

4.3 Conventional Water Quality Data

In 2010, ADEM published ecoregional reference guidelines for a number of parameters and pollutants. Reference streams, also referred to as “reference reaches” or “ecoregional reference sites,” are defined as relatively homogeneous areas of similar climate, land form, soil, natural vegetation, hydrology, and other ecologically relevant variables (USEPA, 2000b) which have remained comparatively undisturbed or minimally impacted by human activity over an extended period of time in relation to other waters of the State. While not necessarily pristine or completely undisturbed by humans, reference streams do represent desirable chemical, physical and biological conditions for a given ecoregion that can be used for evaluation purposes. The reference streams selected for a particular analysis depends primarily on the available number of reference streams and associated data within a particular ecoregion. Therefore, the total number of reference sites selected and the aerial scale (i.e. Ecoregion Level III, Level IV) used to represent a reference condition will often vary on a case-by-case basis.

ADEM elected to use the 90th percentile of the data distributions from the selected reference sites to establish goals for siltation, specifically TSS and turbidity, on an ecoregional basis. The 90th percentile of the data distribution is considered an appropriate target since it falls within an acceptable range of “least-impacted” conditions (i.e. upper quartile). Median values are used to represent existing TSS

conditions within the impaired waterbody, and turbidity values are assessed on an individual sample basis. Alabama's 2010 Ecoregional Reference values for ecoregion 68 can be seen in Appendix 1.

4.3.1 Total Suspended Solids

Total suspended solids data was collected from NFDJ-1 and NFDJ-2 during the 2012 sampling season. Seven TSS samples were collected from NFDJ-1 and eight TSS samples were collected from NFDJ-2. The median TSS values at NFDJ-1 and NFDJ-2 were 6 mg/L and 2 mg/L, respectively. Both of these values are below the ecoregional reference value of 14 mg/L. TSS data from stations NFDJ-1 and NFDJ-2 can be seen in Appendix 2.

Table 4: TSS Median Values for NFDJ-1 and NFDJ-2

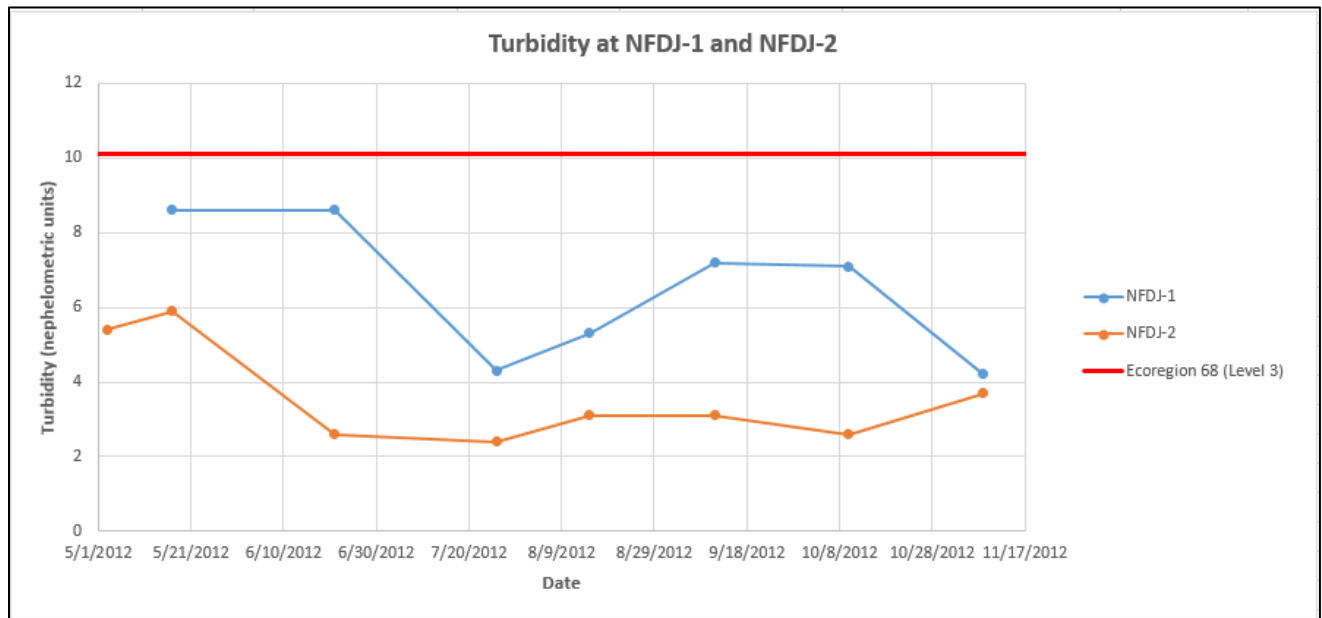
Station	TSS Median Value (mg/L)	Eco-reference (mg/L)
NFDJ-1	6.0	14.0
NFDJ-2	2.0	14.0

4.3.2 Turbidity

The current Departmental numeric turbidity criteria states that "in no case shall turbidity exceed 50 nephelometric turbidity units (NTU) above background." For the purposes of this Delisting Decision, the ecoregional reference turbidity value for each station will be considered to be representative of "background" conditions. Therefore, the available turbidity samples from each station will be individually compared against the applicable numeric criterion (i.e., 50 plus ecoregional reference guideline turbidity) for that station in order to determine if the currently listed segment of Newfound Creek is now meeting its designated use.

The figure below presents an assessment of turbidity samples collected during the 2012 sampling season at NFDJ-1 and NFDJ-2. Eight turbidity samples were collected from each station, and none exceeded the ecoregion 68 reference value of 10.1 mg/L. The turbidity data can be seen in Appendix 2.

Figure 4: Turbidity values at NFDJ-1 and NFDJ-2



5.0 Conclusion

Based on the examination of available data collected within the impaired segment of Newfound Creek, ADEM has determined that impairment due to siltation (habitat alteration) does not exist. Accordingly, ADEM will not develop a TMDL for Newfound Creek due to “more recent data,” which is just cause for delisting waterbodies according to Title 40 of the Code of Federal Regulations (CFR), Part 130.7(b)(6)(iv).

6.0 Public Participation

As part of the public participation process, this Delisting Decision (DD) will be placed on public notice and made available for review and comment. The public notice will be prepared and published in the major daily newspapers in Montgomery, Huntsville, Birmingham, and Mobile, as well as submitted to persons who have requested to be on ADEM’s postal and electronic mailing distributions. In addition, the public notice and subject document will be made available on ADEM’s Website: www.adem.state.al.us. The public can also request paper or electronic copies of the report by contacting Ms. Kimberly Minton at 334-271-7826 or kminton@adem.alabama.gov. The public will be given an opportunity to review the DD and submit comments to the Department in writing. At the end of the public review period, all written comments received during the public notice period will

become part of the administrative record. ADEM will consider all comments received by the public prior to finalization of this DD and subsequent submission to EPA Region 4 for final review and approval.

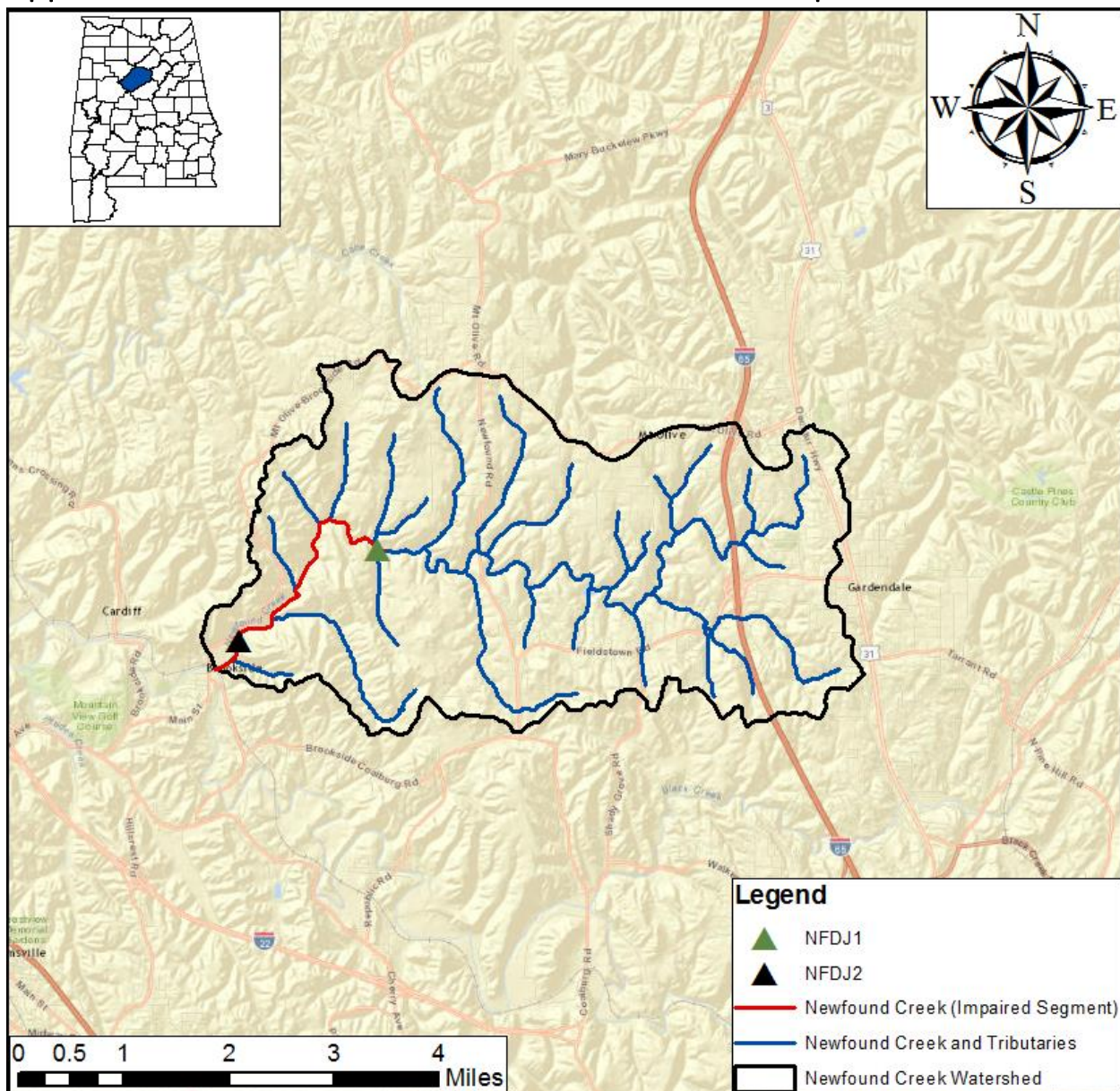
Appendix 1: Ecoregional Reference Values-Ecoregion 68

Parameters	Basis of comparison	Result to compare	45a	45d	45	65a/b	65f	65g	65i	65j	65q	67f	67h	67	68d	68e	68	71f	71
Physical																			
Temperature (°C)	90th %ile	Median	24.656	25	25	27	24.6	27	25	24	27	24	26	25.7	25	23.48	24	22.12	22.586
Turbidity (NTU)	90th %ile	INDIVIDUAL	21.7	6.823	15	49.56	9.7	13.05	26.21	10.73	42.3	6.622	10.787	8.824	9.667	9.025	10.1	3.693	11.1
Total Dissolved Solids (mg/L)	90th %ile	Median	67.9	85.4	80	162.8	53.4	97.4	63.3	167.6	103.4	165	79.4	151.2	118	84.8	97.2	79.6	150.5
Total Suspended Solids (mg/L)	90th %ile	Median	16	12	15	45	13.2	16.3	27.5	26.9	104.6	11.3	12.7	12.4	27	10	14	9.6	8.9
Specific Conductance (µmhos)	Median	Median	40.1	37	39.05	129.7	20.4	53.4	25.8	70	72.5	207	34.35	86	49.5	37	39.15	96	109
Hardness (mg/L)	Median	Median	10.65	11.1	11	56	14	14.2	6.52	82.1	34.6	94.05	8.56	42.3	16.2	10	12.15	47.2	56
Alkalinity (mg/L)	90th %ile	Median	21.8	23.5	23.01	84.41	11.8	21.85	21.05	130.64	36.36	121.73	16.54	117.716	21	44.2	42.2	57.492	109.4
Stream Flow (cfs)																			

Appendix 2: Turbidity and TSS data from NFDJ-1 and NFDJ-2

Station ID	Visit Date	Turb (NTU)	TSS (mg/L)
NFDJ-1	4/17/2012	-	28.0
NFDJ-1	5/17/2012	8.59	6.0
NFDJ-1	6/21/2012	8.58	10.0
NFDJ-1	7/26/2012	4.27	6.0
NFDJ-1	8/15/2012	5.34	6.0
NFDJ-1	9/11/2012	7.19	9.0
NFDJ-1	10/10/2012	7.13	4.0
NFDJ-1	11/8/2012	4.15	2.0
NFDJ-2	4/17/2012	-	7
NFDJ-2	5/3/2012	5.35	-
NFDJ-2	5/17/2012	5.89	2
NFDJ-2	6/21/2012	2.57	1
NFDJ-2	7/26/2012	2.43	1
NFDJ-2	8/15/2012	3.07	3
NFDJ-2	9/11/2012	3.12	3
NFDJ-2	10/10/2012	2.64	1
NFDJ-2	11/8/2012	3.66	2

Appendix 3: Stations NFDJ-1 and NFDJ-2 Location Map



Appendix 4: Station Pictures

NFDJ-1 (Looking Upstream)



NFDJ-1 (Looking Downstream)



NFDJ-2 (Looking Upstream)



NFDJ-2 (Looking Downstream)

